

# Astrogram

Communication for the Information Technology Age

## NASA, Ames rank among the best federal employers

So you think you work for the best agency in the federal government? Well, you're not alone. It turns out that most of your colleagues think so, too!

In a recent report based on the Office of Personnel Management's (OPM's) landmark 2002 federal human capital survey, NASA not only came out on top, it dominated the 'Best Places to Work' employee satisfaction rankings in virtually every respect.

In a survey with over 100,000 federal employee respondents from 28 cabinet departments and independent agencies, NASA ranked first overall in employee satisfaction. NASA also led all other federal agencies in the categories of teamwork, effective leadership, strategic management, training/development, family-friendly culture and benefits, performance-based rewards and advancement, work/life balance, employee skills/mission match and support for diversity. Only in the 'pay and benefits' category did NASA fail to top the list, finishing third overall behind the National Science Foundation and OPM. Further, among more than 120 federal 'sub-agencies,' NASA swept the first three spots and placed six field centers in the top 15, including Ames Research Center at a robust number 12.

This is a particularly strong showing for Ames given the center's research focus compared to the employee motivating and rallying advantages enjoyed by operational NASA field centers pursuing targeted space flight missions. It is also important to note that the survey was conducted prior to the tragic loss of space shuttle Columbia and its crew of seven this past February. It is unclear how that event and its aftermath may impact subsequent satisfaction surveys of federal workers, particularly those at NASA centers.

Ames Research Center fared particularly well in a number of categories, placing third among the 120-plus sub-agencies in family-friendly culture and benefits, fourth in support for diversity and fifth in effective leadership. Ames also placed sixth in teamwork, sixth in

performance-based rewards and advancement, ninth in employee skills/mission match and seventeenth in training/development.

In fact, the only categories in which Ames did not place among the very best in the employee satisfaction rankings were pay and benefits, work/life balance and strategic management. Based on the questions posed, the lower rankings for Ames in these categories is likely attributable to unavoidable consequences of the center's geographic location. This includes such factors as

the high cost of living in the Bay area, traffic congestion, long commutes and the challenges of competing for world-class scientists and researchers in the Silicon Valley's high-tech labor markets. Nonetheless, to address areas that can be improved, Ames' Center Director Scott Hubbard has already instituted important new measures, including a Strategic Research Council and an IR&D fund to facilitate key center investments.

"What the data tells us is that NASA's workforce is the most engaged, the most  
*continued on page 12*

## Ames software supports 'OneNASA'

A software tool developed at Ames is helping 'OneNASA' teams across the agency as well as other government and industry partners to better deal with mishaps.

Called 'Investigation Organizer' (IO), the software enables widely separated and local groups to work together via the Internet. The program has helped NASA respond to several mishaps including the Helios solar-powered airplane crash, the Columbia crash and the Comet Nucleus Tour (CONTOUR) spacecraft loss.

"This software captures information and investigative reasoning for the investigation team to help manage the investigation and understand the causes of the mishap," said Tina Panontin, Ames' chief engineer.

An Ames collaborative group developed the Investigation Organizer software. The developers included Panontin, Rich Keller of Code IC and a multi-directorate Ames team. The Engineering for Complex Systems program (Headquarters, Code R) funded the software's development, which is based on earlier work from the Computing, Information and Communications Technology (CICT) program.

"We looked at how could we make mishap investigations better, so that we

could identify the causes more effectively and efficiently and communicate



NASA photo by Tom Trower

Tina Panontin, Ames' chief engineer and one of the developers of the Investigation Organizer.

the results," Panontin said. "The original Ames-led program for the software became a NASA Headquarters-led program. The software has matured to the extent that it can be spun off to commercial use."

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# A Happy Holiday Season to All!

## NASA learns to monitor coral reef health from the sky

Coral reef health may be accurately estimated from sensors on airplanes and satellites in the future, according to an Ames scientist who is the principle investigator in a collaborative project to



Researchers using a handheld 'spectroradiometer' measure reflected light readings from *Acropora palmata*, or elkhorn coral, to determine the reef health in the Bahamas. The collected data are compared to the reading taken during aerial surveys.

develop a method to remotely sense coral health.

Sometimes called the "bellwether of the seas," coral reefs can give first indications of marine ecosystem health.

"Scientists can use coral health as a sensitive indicator of the health of the marine environment," said Liane Guild, a scientist at Ames.

"We're looking into how you could remotely detect coral reef health using aircraft with visible light sensors," Guild said. "First, we have to look at the coral close up, underwater, to see what spectral reflectance the sensor picks up from diseased, stressed and healthy coral."

One of the first steps her team took to develop aerial coral monitoring was to take undersea light-reflectance readings of elkhorn coral with a handheld spectroradiometer. A team of four scuba divers from the universities of Miami, South Florida and Puerto Rico, helped Guild take the first readings at varying depths in summer 2002 near Andros Island, Bahamas, with assistance from the U.S. Navy Atlantic Undersea Test and Evaluation Center. A spectroradiometer measures the amount of ultraviolet, visible and infrared light reflected from an object and is similar to sensors aboard remote-sensing airplanes and satellites.

"We moved up from the coral, little by little, to the surface to learn how light intensity decreases in the water column, which affects our coral reflected-light readings," Guild said. "There also will be a layer of atmosphere between the coral, the water and the sensor when it eventually flies aboard an airplane to survey the reefs," she added.

"The effects of the atmosphere on light are pretty well known, but the challenge is to correct for the effects of the layer of water over the coral," Guild explained. "Instead of taking the top-down approach, we are going from the bottom up to the airplane, and later to satellite sensing of coral health," Guild said.

"Ultimately, we plan to fly 'hyperspectral' instruments, containing many detectors that collect information in the visible light range," Guild explained. These instruments will provide the most useful information about coral-reef community health from above the sea, according to Guild.

The team's research emphasis is on *Acropora palmata*, or elkhorn coral, a major reef-building coral. It is prevalent in the study area, but is suffering from 'white band disease.' Elkhorn coral is on the verge of becoming an endangered

species because it has severely declined in many areas of the Caribbean, Guild noted.

The team and engineering scientists from the University of Arizona also are developing a specialized computer model to analyze coral reflected-light data. The computer model will help scientists better interpret the raw data gathered by aircraft or satellites.

Guild recently discussed her group's work at the fall meeting of the American Geophysical Union at the Moscone Convention Center, San Francisco.

The research is funded by NASA's Earth Science Enterprise, which is dedicated to understanding the Earth as an integrated system and applying Earth system science to improve prediction of climate, weather and natural hazards using the unique vantage point of space.

For information about NASA's Earth Science Enterprise on the Internet, visit: <http://www.earth.nasa.gov> For images on the Internet, visit: <http://amesnews.arc.nasa.gov/releases/2003/03images/coral/coral.html> More information about the coral monitoring project is available at: <http://geo.arc.nasa.gov/sge/coral-health>

BY JOHN BLUCK ▲

## Buzz Aldrin speaks at Hiller museum



NASA photo by Eric James

Dr. 'Buzz' Aldrin, Apollo 11 astronaut and the second human to walk on the moon, addresses the sell-out dinner crowd at the recent 'Centennial of Flight' celebration dinner.

The 'Centennial of Flight' celebration dinner held on Nov. 22 was sponsored by the San Francisco Section of the American Institute of Aeronautics and Astronautics the Education Office at NASA Ames and the Hiller Aviation institute. The event featured 'An Evening with Buzz Aldrin,' as well as a glimpse into the 'Living Legends' Bay area aerospace history project. The Hiller Aviation museum has a historic collection and traces aviation history in the Bay area to before the Wright brothers.



## Former FIRST robotics student now pursues career at Ames

Our own revered saying "To inspire the next generation of explorers," passes often around the Ames campus. It prompts us to reach out to students, to bring them the world of NASA, in hopes that they someday will choose to become the pioneers of the future. But how do we determine our aggressive efforts are successful in encouraging students to pursue fields in engineering, science and technology?

The Robotics Education Project of the Education Office at Ames underscores the importance of keeping track of students of all ages that participate in NASA-sponsored programs or internships. They have recently had some unexpected success in discovering how their efforts manifest. What began as an educational outreach project at the K9 rover field test, turned into a welcome discovery of a F.I.R.S.T. robotics competition graduate. Eric Park of Millbrae is currently a systems engineer for the K9 rover, in charge of hardware instrumentation integration. Park has worked for NASA full time since May, after being discovered at a F.I.R.S.T. robotics competition where K9 was being displayed. At F.I.R.S.T., large crowds of high school teams gather to enter their own robots into an intense competition against others in a race to complete a specific objective. After hearing the rules and regulations of the upcoming game, students have six weeks to create and build a semi-autonomous robot design using a kit with a fixed number of parts.

After participating for four years in NASA's Tech Challenge as a junior high student, Park initiated his own F.I.R.S.T. team at Mills High School in Millbrae with three other friends. During his junior year at Mills, three weeks before the submission deadline of the 1998 games, Park recalled "calling companies like crazy for funding," determined to partake in the annual challenge. Two years later, Park's devotion remained strong with F.I.R.S.T., and he continued to participate during his undergrad experience at UC Berkeley as a mentor for a Berkeley high school team.

During the Regionals in 2000 in San José, he extended his curiosity to the displayed K9 rover and NASA representatives, and "swung by and asked a lot of good questions, apparently." He adds, "And I asked if they had any internship openings and I ended up interning for NASA for a few years. And, so now that I've graduated, I started

here full time last May." At this point during the interview, Park displays a broad smile, partially shadowed by his hard hat that is required in the test field rock quarry in Aromas, Calif.

And although watching his creation function successfully remains his favorite part of the engineering process, he notes that working as an engineer, "You need to be able to manage a team and yet you still need to have the technical com-

petence to get the job done." Park recalls that "F.I.R.S.T. was definitely a learning experience. It taught me how to manage large teams and how to get large engineering projects done as a group. You don't get experiences like that anywhere."

He remains loyal to his high school team and continues to support as a mentor each year. Although he admits

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## Ames software supports 'OneNASA'

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Investigation Organizer has made it easier for diverse groups to work across organizational boundaries. "The software is Web-based and so people across NASA can participate in one big team," Panontin explained.

"Because of the incidents we've been having, we have been working more closely together," Panontin said. "It's resulted in a give and take of ideas and information concerning research into investigation processes. In fact, we had a mini workshop here at Ames for the National Transportation Safety Board (NTSB), the Air Force Safety Center, Navy safety people and others."

"A crisis makes you realize common issues that we all face," Panontin said. "How do accidents occur? The risks that we face when we conduct projects--communication issues, resource issues--I think they are very common across many organizations," she continued.

The Investigation Organizer support team used the software to help the Columbia Accident Investigation Board track and manage its information. There also were people from the military, the Department of Transportation, Federal Aviation Administration, the Massachusetts Institute of Technology, Stanford University and other organizations who used the software during the Columbia inquiry, according to Panontin.

The Investigation Organizer software also is being used for the Helios investigation. Helios, a solar-powered aircraft, crashed near Kauai last summer. The Helios team has members from Langley Research Center, Glenn Research Center, Kennedy Space Center, Dryden Flight Research Center, Ames and the National Oceanic and Atmospheric Administration.

Another team, the Comet Nucleus Tour Mishap Investigation Board, just

completed its investigation of the loss of the CONTOUR spacecraft. CONTOUR launched July 3, 2002, aboard a Boeing Delta II rocket from Cape Canaveral Air Force Station, Florida. Communications with the spacecraft ceased on Aug. 15, 2002. Attempts to contact CONTOUR were made through Dec. 20, 2002, when NASA concluded the spacecraft was lost.

The board said the probable proximate cause for this accident was structural failure of the spacecraft due to plume heating during the embedded solid-rocket motor burn.

However, the lack of telemetry and observational data, immediately prior to and during the burn, and the lack of recoverable debris, leave open the possibility that one of several other problems could have led to the accident. The alternate possible causes are catastrophic failure of the solid rocket motor; collision with space debris or meteoroids; and loss of dynamic control of the spacecraft.

The CONTOUR investigation included NASA Headquarters, Goddard Space Flight Center, the Jet Propulsion Laboratory, Aerospace Corporation, Los Angeles (a federally funded research and development center for the Air Force) and Marshall Space Flight Center.

The NASA Engineering Safety Center (NESC) at Langley has expressed interest in Investigation Organizer, too, according to Panontin. "NESC is a virtual organization that has members from every NASA center. Members now communicate via telephone conferences, e-mail, etc.," she said.

In light of the fact that the IO software has proved so useful in numerous incidents, it is a safe bet that it, and new versions of it, would continue to be used not only across NASA, but also by industry, Panontin concluded.

BY JOHN BLUCK 

## NASA employee's determination overcomes challenges

To her colleagues and friends, Dana Bolles is an inspiration. Whether she is carrying out her job as an environmental compliance specialist for NASA or



Ann Sullivan (left, of Code DX) and Dana Bolles celebrate the end of the Avon Breast Cancer 3-Day Walk in August 2001.

then attended San Francisco State University, where she received a master's certificate in rehabilitation engineering and technology. Bolles joined NASA's Kennedy Space Center in Florida as a flight systems safety engineer. After 1-1/2 years at NASA's Goddard Space Flight Center, Greenbelt, Md., as a safety engineer, Bolles transferred to NASA Ames in 1999.

"We don't always have control over what happens in our lives, but we do have control over how we deal with it," said Bolles. "I could have easily decided to do nothing with my life and in general, society would have excused it. But, why spend my life being miserable when there's a whole world of opportunities to have a wonderful life?"

Bolles said she is lucky to have a loving family and supportive friends. She spends her scarce free time with friends and contributing to the community. Two years ago, Bolles completed a 60-mile, 3-day walk to raise funds to fight breast cancer, to honor her mother. She also helped produce an educational CD-ROM for children with disabilities in which she talks about her work, proving that determination can overcome the challenges of being disabled.

"I don't think of myself as a missionary," said Bolles. "I am just a person doing what I do best...live. But if knowing what I do helps someone out of a rough time in their life, that's great. I'll always be willing to help someone out."

BY VICTORIA STEINER ▲

## Keeping Ames a safe place to work!

Are you aware of an unsafe condition at Ames? If so, send a short description to the Safety Suggestion Committee at Mail Stop 221-10. It is an employee-run safety committee comprised of a

Paul Grams. He highlighted the fact that increase in security had many more employees wearing lanyard badge holders around their neck to quickly access the security readers on doors and gates.

raising funds to fight breast cancer, Bolles always has an upbeat attitude.

Born with no arms or legs, Bolles nonetheless decided to do her best to overcome her physical challenges. For the past five years, she has ensured that her employer, NASA Ames, indeed protects and improves life on Earth by managing programs that monitor air quality, industrial wastewater, toxic gases, aboveground storage tanks, and spill prevention and control countermeasures.

"For each program, my job is to ensure that NASA Ames maintains compliance with all applicable federal, state and local laws and regulations," Bolles explained. "This job is challenging most of the time, especially since we are located in the San Francisco Bay area, where local regulations often are some of the most stringent in the country."

Bolles helps NASA Ames carry out its commitment to safety and environmental protection by ensuring its compliance with environmental regulations and by obtaining the required permits for all equipment and processes that may potentially pollute the air or water. She also supervises tracking of activities that must be monitored for compliance, and she acts as a consultant when others need help to meet environmental regulations.

Bolles attended the University of California, Santa Cruz, for two years and graduated from the California State University, Long Beach, with a bachelor's degree in mechanical engineering. She



### Safety Committee Spotlight

#### Safety Suggestion Committee

civil servant and contractor from each directorate. The committee is chaired by Rho Christensen and co-chaired by Shelleen Lomas. It has a goal of encouraging civil servant and contractor employees to bring any unsafe conditions that they are aware of to the attention of management. Once the suggestions are submitted, the committee meets to investigate each hazard and any implementation processes and, where feasible, recommends action to the appropriate personnel. Three times each year, the committee selects the best suggestion from that trimester and presents an award to the person responsible for the submission. Civil servants receive a monetary award of \$450 and contractors receive a certificate of recognition. The winning suggestions from 2003 are:

The first trimester winner was Janet Jarman for her suggestion to repaint the loading bays behind building N241. The painting scheme for loading/unloading areas and no parking areas caused many deliveries to block the building steps with their vehicles. Employees resorted to jumping on and off loading bays when coming or going at those times.

The second trimester's winner was

Paul Grams. He highlighted the fact that increase in security had many more employees wearing lanyard badge holders around their neck to quickly access the security readers on doors and gates.

Since many lanyards were solid cords, there was a danger that someone could be injured if his/her lanyard were to become entangled. His suggestion was to provide safe breakaway badge lanyards to prevent any potential serious injuries.

The final winner in 2003 was Tom Gilbertson who wrote of a dangerous traffic situation on an alley between N211 and N213. A blind spot was often created by cars or utility vans parked alongside N212 that prevented oncoming traffic and pedestrians from seeing one another. His suggestion was to put an appropriate traffic sign at the intersection and paint a crosswalk on the asphalt.

The Ames Safety Suggestion Committee accepts your suggestions year round. For the 2003 awards, more than 50 suggestions were submitted and reviewed. The deadline for submitting your safety suggestion for the next trimester is Jan. 30. If you would like more information about the Safety Suggestion Committee, visit its Web site at: <http://q/qh/safety/safety-award.php>. In the meantime, "mission success starts with mission safety!"



## Early space flight innovator, Glen Goodwin, passes away

On Nov. 20, 2003, Glen Goodwin, a NASA pioneer and innovator in the early research of planetary research, passed away from pancreatic cancer at the age of 84. Goodwin was born on Nov. 24,



*Glen Goodwin describes the workings of the broad plasma beam facility at Ames, precursor for the arc jet facility.*

1918 in Phoenix, British Columbia, Canada.

After receiving his mechanical engineering degree at the University of Washington in 1942, Goodwin began his long career at the National Advisory Committee for Aeronautics Aircraft Engine Research Facility in Cleveland, Ohio, which was later named NASA Lewis and then NASA Glenn Research Center as a mechanical engineer. He continued as a mechanical engineer after moving to Ames in 1946.

At Ames, Goodwin became an innovator in heat transfer research, which was instrumental in the development and advancement of space flight. As research in this area progressed, Goodwin was a driving force in the development of new facilities at Ames to study how vehicles behaved at very high speeds under low atmospheric pressure conditions experienced at the edge of our atmosphere.

"Glen was a pioneer in his field of heat transfer, whose efforts led to a number of unique facilities devoted to solving the problems of space flight," said Jack Boyd, NASA Ames chief historian. He built and led tests in a low-density wind tunnel, a helium tunnel and the early arc jet facilities, he added.

Goodwin also was a driving force in acquiring one of the first

supercomputers, an IBM 360/67, for Ames. The IBM became one of the first computers to be networked, communicating with an ILLIAC-IV supercomputer to conduct numerical simulations.

In his 30-year career, Goodwin held numerous technical and managerial positions including chief of the Heat Transfer Branch, chief of the Thermo and Gas Dynamics Branch and director of astronautics during the Hans Mark era. He co-published numerous research papers on heat transfer, with one on heat transfer to cylinders contributing to the success of the fabled X-15 rocket plane.

Throughout his career, he was well thought of by his colleagues as an effec-

tive manager who was personable and had a sense of humor. "He was an amiable, friendly, humorous research pioneer at Ames," said Boyd.

After his retirement on Dec. 20, 1973, he moved to Sun City, Ariz., to work for the Arizona governor investigating solar energy and to pursue an avid interest in the game of golf. He later moved to Sierra Vista, Ariz., in 1993.

According to his wishes, Goodwin was cremated. A memorial is planned in both Sierra Vista and San José at a later date. Goodwin is survived by his wife Elaine; sister, Frankie Richards; nephew Roy Denham, and nieces Leslie Richards, Rae Alexander and Joan Everson.

BY JONAS DINO ▲

## NASA employee maintains heritage while following her dreams

Twenty-two years ago, Tianna Shaw learned about engineering processes and problem solving when she attended a workshop entitled 'How to Build a Better Mouse Trap.' Today, Shaw uses every bit of acquired knowledge to manage the Facilities Utilization Office of the Life Sciences Division at Ames.

Shaw, a Native American, graduated from the University of Southern California with a bachelor's degree in biomedical and electrical engineering. She then attended California State University, Sacramento, where she received a master's degree in biomedical engineering. During her graduate studies in 1991, Shaw joined NASA Ames as a student intern.

"Although I decided to go into biomedical and electrical engineering, I love the concept of applying my education and theories to produce practical solutions in the life sciences research arena, and NASA is a perfect place to do it," said Shaw.

Currently, Shaw provides management oversight and leadership for a multidisciplinary team of NASA scientists and technicians. The team conducts science experiments in the Center for Gravitational Biology Research facilities, which is dedicated to improving understanding of the effects of gravity on living systems.

Despite an extremely busy schedule balancing work and taking care of four children, Shaw still makes time to maintain cultural ties to Native American traditions.

"You can pursue a technical career and still continue to be involved with your community," said Shaw. "In general, I see a lot of Native Americans in

the fields of science and engineering. You just have to look at the right places, like the American Indian Science and Engineering Society, for example."

Shaw is a great role model for young people. She is maintaining her Native



*Tianna Shaw*

NASA photo by Tom Trower

American roots and following her dreams. Her advice to young people is: "You may find you really can pursue dreams that challenge you intellectually and still find many ways to participate in community activities."

BY VICTORIA STEINER ▲

## Lockheed receives top safety marks

The NASA Ames Safety Office, working through the Ames Contractor Council, recently solicited contractor nominations for a new Ames safety award titled 'Best Contractor Safety Pro-

the Ames Contractor Council recommended the award to be presented to Lockheed Martin Space Operations. Ames Center Deputy Director Allen Flynt presented the award to Lockheed



Lockheed Martin Space Operations employees at Ames Research Center.

gram for 2003 at Ames Research Center.' The Ames Contractor Council met in October to consider candidates for the award that recognized a NASA support contractor as a leader in occupational safety and health. This contractor successfully protects workers from death, injury and illness. After reviewing each of the contractor submissions,

Martin Space Operations site manager Marvin Christensen at the Contractor Council meeting on Nov. 5.

Lockheed Martin Ames attributes its success to the fundamental principles of management commitment and employee involvement. With a total of 250 employees working together, they have completed over four years (nearly two



NASA photos by Janine Yanagawa

Ames Deputy Center Director Allen Flynt (left) presents Lockheed Martin Space Operations Site Manager Marvin Christensen with the 2003 Contractor Safety Award.

million employee hours) without a lost-time injury or illness.

The Ames Safety Office and the Ames Contractor Council is looking forward to a second award in 2004.

BY SHELLEEN LOMAS ▲

## Hollenbach honored



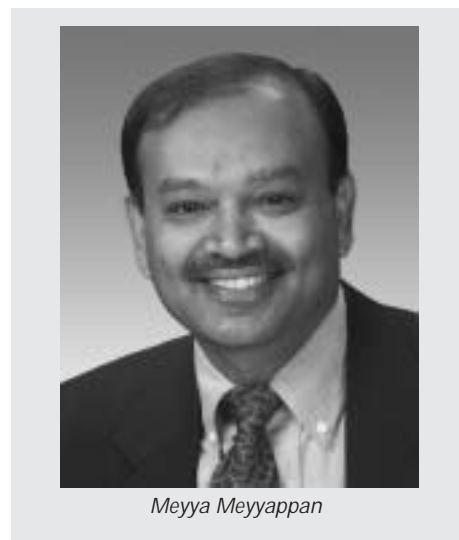
NASA photo by Tom Trower

NASA Ames Center Director G. Scott Hubbard (left) presents David Hollenbach with the 2002 H. Julian Allen Award during a recent ceremony.

David Hollenbach, winner of the 2002 H. Julian Allen Award, gave a presentation entitled 'The Destruction of Planet-Forming Disks Around Young Stars' on Nov. 18 at Ames. A ceremony followed the presentation. The H. Julian Allen award is presented for best technical paper and is the longest standing as well as one of the most prestigious awards given at Ames.

## Meyyappan named IEEE fellow

One of the largest professional societies in the world, the Institute of Electrical and Electronic Engineers (IEEE), recently named Ames' Meyya Meyyappan



Meyya Meyyappan

as the organization's first nanotechnology fellow for his "contributions to and leadership" in that field. The IEEE board of directors elected

Meyyappan to be an IEEE fellow effective Jan. 1, 2004.

"He is the first person to have been named as a fellow for nanotechnology to IEEE which is a significant honor," said Julie Schonfeld, who is deputy director at Ames' Center for Nanotechnology.

"Recognizing the achievements of its members is an important part of the mission of the IEEE," Michael Adler of IEEE said. "Each year, following a rigorous evaluation procedure, the IEEE fellow committee recommends a select group of recipients for one of the institute's most prestigious honors, election to IEEE fellow," Adler added.

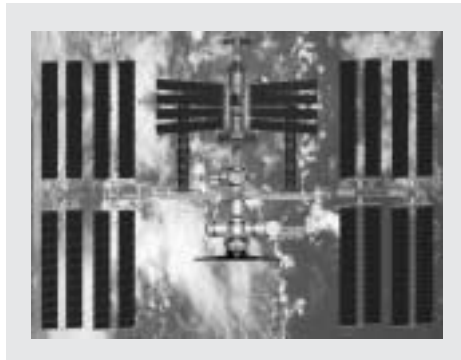
"It is a great honor to be elected fellow," Meyyappan said. "It is all the more exciting, given the fact this is the first time someone is recognized for their contributions to nanotechnology."

BY JOHN BLUCK ▲

*There's got to be a better way!*

## International Space Station marks five years in orbit

The International Space Station reached the historic five years in space milestone in November. The unique orbiting laboratory complex has grown



from a lone, uninhabited module into a permanently staffed, house-sized research facility.

The station remains the largest and most complex international space research project in history. It will eventually triple scientific capacity with components awaiting the space shuttle's return to flight.

The first space station element, the Russian Zarya control module, was launched from Baikonur, Kazakhstan, Nov. 20, 1998. Two weeks later, the space shuttle Endeavour delivered the second element, the U.S. connecting module called Unity. The challenges, triumphs and tragedy shared by the international partnership since then have solidified cooperation on the station among the United States, Russia, Canada, Japan and Europe.

"Together with our international partners we have learned how to build, operate and maintain a very complex spacecraft, through the good times and the bad," said Bill Gerstenmaier, NASA space station program manager. "With this experience to guide us, we look forward to the future, with a vast expansion of the station on the horizon."

At five years old, the station is still growing. More than 80 tons of equipment and hardware are in the space station processing facility at NASA's Kennedy Space Center (KSC), Fla., be-

ing prepared for launch.

The space station has orbited the Earth more than 29,000 times. It is visible in the night sky as it flies more than 210 miles overhead. The living and working area inside the station has a volume of about 15,000 cubic feet, larger than a three-bedroom house.

The orbiting complex has been inhabited since Nov. 2, 2000. Eight successive crews, 22 people, have staffed the station. Residents have conducted research in bioastronautics, physical sciences, fundamental space biology, space product development and space flight disciplines. In the U.S. Destiny lab alone, astronauts have worked on over 70 different science experiments.

Hundreds of people on Earth support station operations from the Station Mission Control Center at NASA's Johnson Space Center in Houston. Round-the-clock science operations are handled by the Payload Operations Center team at NASA's Marshall Space Flight Center in Huntsville, Ala. Hundreds of other scientists and engineers perform important jobs, such as training station crews and building new hardware that will become part of the orbiting laboratory.

NASA Ames is contracting a life science research facility aboard the ISS. The facility consists of many pieces of hardware, including a centrifuge, life

sciences glove box and habitats for biological experiments. In addition, Ames supplied a suite of radiation-measuring dosimeters, known as the passive dosimeter system, which serves as a radiation monitor inside the ISS to ensure the astronauts' safety.

Additional research facilities are being readied for launch on future shuttle missions. They will enhance Destiny's capabilities in the areas of fundamental space biology; glass and porous ceramics materials processing research; human physiology research; combustion research; research on the behavior of fluids; Earth observations; and experiment refrigerator/freezer conditioned sample storage.

Also awaiting launch at KSC are solar arrays and support structures that will triple the sunlight-gathering, solar cell area, thereby increasing the power dedicated to research by 84 percent.

The Node 2 module that will serve as a connector between the U.S., European and Japanese research labs is at KSC undergoing pre-launch processing. The Kibo Japanese experiment module, including a pressurized lab already at KSC, also will be added to the station. The European Columbus laboratory, under construction in Bremen, Germany, will expand the station's volume to almost that of a five-bedroom house.

BY VICTORIA STEINER ▲

## A gathering of whirlybirds



NASA photo by Tom Trower

On Nov. 14, a fly-in of law enforcement aircraft occurred on the Ames ramp adjacent to Bldg. N211. Helicopters, in particular, are important members of airborne law enforcement teams. Both the San José police department and the Santa Clara County sheriff operate helicopters out of the N211 hangar.

*Hey, we agree*



## Ames installs world's first 512-processor supercomputer

NASA's high-performance computing capabilities have taken a giant step forward with the installation of the world's first 512-processor SGI® Altix™ single-system image (SSI) supercomputer at NASA Ames.

Ames, a renowned leader in the development of large single-system image machines, has been collaborating with SGI over the past seven years in the development of the world's first 256-, 512- and 1,024-processor global shared-memory systems. Recently, engineers at NASA and SGI worked together to expand the capabilities of the SGI Altix line of scalable systems. The latest result is NASA's new 512-processor SSI Altix system based on the Linux® operating system, the first of its kind in the world.

"With the addition of the new SGI Altix system, NASA's high-end computing testbed activities in support of the agency's science and engineering missions will be greatly enhanced," said Walt Brooks, chief of the NASA Advanced Supercomputing (NAS) Division at Ames. "Thanks to its outstanding performance capabilities, this new testbed is already helping NASA achieve breakthrough results to meet major challenges in atmospheric and ocean modeling and aerospace vehicles," Brooks added.

The SGI Altix 512-processor system is part of an ongoing NASA effort to push the limits of high-performance computing. "Creating and using this system took just a matter of weeks—from September to October," said Jim Taft, lead for the advanced computing technologies effort at NASA Ames. "The current system is already in partial production, running mission-critical computations in aeronautics and Earth sciences around the clock. With the current workload, stability of the system has been excellent," Taft said.

According to Bob Ciotti, an Ames research scientist and the lead for the center's Terascale Applications Group, the new supercomputer achieved a Linpack Rmax rate of 2.45 teraflops and a STREAMS Triad rate of 1.007 terabytes per second—the fastest performance measurement in the world by both ratings for a shared-memory system and the first to break the one terabyte limit on the memory bandwidth benchmark.

"Shared-memory systems have the communication characteristics necessary to scale applications to hundreds of processors," Ciotti said. "With this new Altix, the worst-case communication latency is less than a microsecond. That's important for sustained performance when running on all 512 processors."

The new supercomputer is being used for a joint effort by NASA Headquarters, NASA's Jet Propulsion Laboratory, Pasadena, Calif., NASA Ames and NASA Goddard Space Flight Center, Greenbelt, Md., to deliver high-resolution ocean analysis in the framework of the Estimating the Circulation and Climate of the Ocean (ECCO) consortium, which involves the Jet Propulsion Laboratory, the Massachusetts Institute of Technology, Cambridge, Mass., and the Scripps Institute of Oceanography, La Jolla, Calif.

"The turnaround time users typically see on large ocean simulations can take months," Ciotti said. "By dedicating half of the machine to the ECCO project and scaling the code to run efficiently on all the processors, we now expect turnaround to be about two to three days." Scientists of the ECCO consortium believe that running in this very high-performance environment will help them better understand ocean circulation and its impact on global climate patterns.

The new SGI Altix SSI system is both faster and more efficient than its predecessor, which was the world's first 1,024-processor SGI Origin-based supercomputer, acquired by NASA Ames in November 2001. The Altix system also provides dramatically better price/performance, utilizing both the Intel® Itanium 2® processors and a 64-

bit Linux operating environment.

NASA Ames' quest for building increasingly larger SSI systems is driven by the goal of providing the simplest and most efficient system for high-performance computing to its scientific users. This simplicity in design has translated into rapid advancement through each stage of the project.

"As we progressed through each stage of development, from 64, to 128, to 512 processors, the system has performed almost flawlessly, with performance numbers routinely three to four times the previous best results at NAS with a similar number of processors," said Taft.

The new Altix system is driven by Intel® Itanium 2® processors and has a total memory of about one terabyte. Introduced in January 2003, the Altix 3000 systems incorporate the high-performance SGI NUMAflex global shared memory architecture. The NUMAflex™ design enables the CPU, memory and its operating systems, graphics and storage to be packaged into modular components, or "bricks."

The new supercomputer is the first in a series of high-end computing testbeds driven by a recently forged partnership between NASA's Office of Aerospace Technology and Office of Earth Science.

BY MICHAEL MEWHINNEY ▲

## Former FIRST robotics student now pursues career at Ames

*continued from page 3*

that its success varies year to year, he notes that "every team gets better, more confident, passing skills onto next year's students."

For NASA, this translates into more students being inspired to participate in programs like those supported by the Education Office. Competitions similar to F.I.R.S.T., like botball and the Tech Challenge, are bringing more students, often women and minorities, into technology and robotics programs each year.

Currently, an effort is being made to track down more of those who participate as students and return to share more experiences with NASA. Eric Park is the first of hopefully many students to be acknowledged for their motivation in these fields, in which NASA played a

key role in the development of their involvement. The future continues to look bright as long as people like Park continue to use their inspiration to find technology and engineering opportunities in the workforce. Better yet, when they return to work at NASA, Park puts his devotion into perspective best. "Well, it's robotics! And NASA is the best place to do it."

BY MICHELLE GOLDSCHMID ▲

*That's why we say*



## Ames scientist shows microwaves don't harm plant growth

An Ames scientist has discovered that future solar-power satellite systems designed to harvest sunlight, convert solar electric energy into weak microwaves and beam them down to Earth to make electricity, are not harmful to green plants.

During the simple experiment, the scientist bathed a tray of alfalfa plants with weak, 2.45 GHz microwaves for seven weeks with no ill effects. The microwaves were about one million times weaker than those an average kitchen microwave oven makes. The test took place at Ames and is the first of many experiments scientists plan to conduct to see if an array of solar-power satellites designed to send microwave power to Earth could affect plant life.

"A tray of growing plants was illuminated with microwaves while control plants were grown behind a microwave-opaque shield. Test plants and the control plants were subjected to the same environment otherwise," said Ames scientist Jay Skiles, who designed the experiment and recently presented its results at the 54th International Astronautical Congress in Bremen, Germany. "In all measured variables, there was no difference between the control and the microwave treatment plants," Skiles added. A 'control' is a parallel experiment in which the factor being tested in the main experiment is left out in order to provide a way for scientists to judge that factor.

In 1968, scientists proposed putting solar-power satellites into orbit about 22,000 miles above the ground, where these spacecraft could harvest sunlight for its energy. While the satellites would collect sunshine to make direct current (DC), they also would be converting the DC to some form of radiation, most likely microwaves. The satellites then would broadcast the microwave energy to the Earth's surface, where power plants would reconvert it into electricity for distribution.

"Over the ensuing decades, the space-power satellite concept has been studied from the view of engineering feasibility and cost per kilowatt, with only little attention paid to the biological consequences to organisms exposed to continuous microwave radiation,"

Skiles said. "The hypothesis of my experiment was that plants exposed to microwaves would be no different from

microwaves on alfalfa, I didn't see any increase in plant or soil temperatures."

Skiles plans to conduct additional



*Jay Skiles evaluates the effects of continuously beaming weak microwaves on alfalfa plants during laboratory tests.*

those plants not exposed to microwaves," he said.

Skiles used off-the-shelf equipment to conduct the experiment. He used the same nutrients and watering techniques on two sets of plants, only one of which was exposed to microwaves.

A microwave generator with an antenna and a parabolic reflector beamed microwaves onto the test plants from the side so as not to block lights placed above the plants. A sheet metal microwave shield protected the 'control' plants from the microwaves so Skiles could compare the non-microwaved plants with the microwaved plants.

Skiles measured the chlorophyll concentration of the alfalfa leaves in the microwaved and non-microwaved plants. He measured the plants' stem lengths, and also harvested, dried and weighed the plants. He found there were no significant differences in the microwave-treated plants and the untreated control plants. Skiles chose to test alfalfa because it is an important crop that animals and people eat. Alfalfa also represents a broad class of economically important plants, he added.

Unlike radioactive materials, microwaves cannot burn living things, but microwaves do generate heat. However, Skiles reported, "Even though I tested

experiments to test plants outdoors, as well as under other conditions. "I want to test plants growing in a glasshouse to determine the effects of microwaves on the plants during daily changes of light and temperature," he said. "Another experiment will be to grow cereal plants, including wheat and oats, to determine the effect of microwaves on the kinds of plants that humankind depend on for food," Skiles continued.

He also plans to test whether or not microwaves provide a competitive advantage for some kinds of plants when several different species are growing in the same area. In another experiment, he is planning to examine the genes of one plant species to learn the effects of weak microwaves on that plant. Additional experiments to test effects of climate change, watering and other conditions also may be conducted, according to Skiles.

NASA's Office of Space Flight Advanced Concepts funded the microwave study. Images related to the experiment are available on the Web at: <http://amesnews.arc.nasa.gov/releases/2002/02images/microwaveplants/microwaveplants.html>

BY JOHN BLUCK 

af2m

## Foothill's Fraknoi named Science Academy fellow

Foothill College astronomy instructor Andrew Fraknoi is the first California community college educator to be named a fellow of the California Academy of Sciences for his contributions to the advancement of science.

The academy is governed by a distinguished group of eminent scientists who have been appointed in recognition of their notable contributions to the natural sciences. Nominated by their colleagues and appointed by a board of trustees, the fellows remain members of the fellowship for life.

Elected from throughout California, there are 300 such fellows at any given time. Other academy fellows in astronomy include educators and scien-

tists from such institutions as UC Berkeley, UC Santa Cruz and NASA.

In addition to serving as the chairman of the Foothill College Astronomy Department, Fraknoi is an educational consultant for the Astronomical Society of the Pacific. Before coming to Foothill in 1992, he served as the society's executive director for 14 years. He is author or coauthor of 14 books on astronomy and astronomy education. In 1994, Fraknoi received the Annenberg Foundation Prize of the American Astronomical Society--the highest honor in the field of astronomy education--and the Klumpke-Roberts Prize of the Astronomical Society of the Pacific, which is given for a lifetime of contributions to popularize

astronomy.

Asteroid 4859 was named Asteroid Fraknoi by the International Astronomical Union to honor his work in astronomy education. Radio listeners know him as a regular guest on local and national radio programs, explaining astronomical developments in everyday language.

In Northern California, he appeared for more than 20 years on the Jim Eason Show on KGO and KSFO radio and is a regular guest on both the Pete Wilson Show on KGO and Michael Krasny's Forum on KQED. Nationally, he has been heard regularly on Science Friday and Weekend All Things Considered on National Public Radio.

## NASA recognized for rotorcraft noise reduction work

In October, NASA Deputy Administrator Fred Gregory accepted the American Helicopter Society's Howard Hughes trophy in a ceremony at NASA Headquarters. The award was presented by M.E. Rhett Flater, executive director of the American Helicopter Society (AHS). The Hughes trophy is given in recognition of an outstanding improvement in fundamental helicopter technology brought to fruition during the preceding calendar year. The award is intended to foster accomplishments in the basic disciplines of the industry. It consists of a large silver bowl engraved with the recipient's name and accomplishment and an individual medal for each winner. The award was established in 1977 by Hughes Helicopters to honor the memory of Howard Hughes and his pioneering accomplishments in aviation.

The trophy was presented to NASA in recognition for award-winning rotorcraft, noise-reduction work done by a team led by NASA Langley that included NASA Ames and the US Army, industry and academia. Attending the ceremony, in addition to Gregory, were: Charles Horner III, associate administrator for legislative relations; J. Victor Lebacqz, associate administrator for aerospace (acting); Terry Hertz; Joe Posey; Tom Brooks; and Casey Burley, all of NASA Langley and Frank

Caradonna, U.S. Army at NASA Ames.

The multi-organizational NASA-led team developed and validated the Tiltrotor Aeroacoustics Code (TRAC), a design-for-noise capability for low-noise

and number of blades to minimize the strength of the noise-producing vortex at the blade tip. Approach path modification involves complex, multi-segmented terminal-area operations to reduce noise while maintaining safety and a low level of pilot workload. The particular technologies identified by this program--developed over an eight-year period--are currently finding their way into the product cycles for future vehicles.

The ceremony celebrated NASA's core competence in both aeronautics and rotorcraft, as well as its long-term collaboration with the US Army. The trophy is to remain in the NASA Headquarters west lobby until a year from now, when it will move to next

year's winner. A 2-foot-by-3-foot poster hangs next to the trophy and explains the NASA noise work that won the award.

Previous recipients of the AHS Howard Hughes award include Ames notables such as Frederic H. Schmitz, Robert A. Ormiston, W.J. McCroskey and various teams from around the country and the world, including the McDonnell Douglas NOTAR team, the Army/Boeing/Sikorsky Comanche team and the Japan OHX engineering team.



NASA Deputy Administrator Fred Gregory (left) receives the Howard Hughes award from American Helicopter Society's Executive Director Rhett Flater (right) recently.

rotors and flight operations. Other achievements include a 12 dB reduction in terminal area noise using technologies such as active blade control, rotor blade designs and approach path modification. Individual blade control includes rotating actuators to change the pitch of each blade independently of the others to reduce vibration and noise and to improve performance. Active rotor control incorporates an on-blade elevon concept to counter the undesirable aerodynamic forces, which cause vibration, without adding extra weight or power. Rotor blade design employs blade shape



## Renovate your project with 'the right stuff'

This is the second article in a series on purchasing recycled products that meet federal requirements listed in the comprehensive procurement guidelines.

Buying recycled copier paper, file folders, trash bags and binders is not just a nice thing to do, it's required if you are spending federal funds.

Last month, if you read the first article in this series, you learned about the 'Comprehensive Procurement Guideline (CPG)' and the federal requirements to buy products made from recycled materials that meet the CPG requirements. These products, the 'right stuff,' are not limited to office supplies and paper products, but include over 50 products, 12 of which are in the construction category.

The federal government requires that common construction materials such as building insulation, carpet, latex paint, concrete, and even restroom dividers, used to renovate office space must meet the minimum recycled content standards in the CPG. The complete CPG list is available on the Internet at: <http://www.epa.gov/cpg/products.htm>.

### I don't do construction, so why do I care?

Many of us likely have been or will be customers of a work request at some point in our federal (and contract support) lives. As customers, we specify what the project is, the location and the required features. Customers must also specify the 'right stuff' for the building materials. For example, a conference room renovation may require installation of carpet, tile, base cabinets, furniture, white boards and reconfiguring the walls. At least three of these tasks require CPG items. Here's the breakdown--make sure you use this on your next renovation work request.

- Carpet must be polyester face fiber with 25 percent or more recycled plastic.
- Carpet cushion must be at least 15 percent bonded polyurethane from recovered cushion or contain 60 percent to 90 percent tire rubber.
- Fiberglass insulation must contain 20 percent to 25 percent recovered glass.
- Latex paint must contain at least 20 percent recovered paint. Recycled paint can be reprocessed: new paint mixed with recovered paint or consolidated: a mixture of only recovered paints).

### What if we are on a tight budget and schedule?

Buying recycled is a requirement. Except possibly for the carpet, all of the building materials in the aforementioned



conference room example cost the same as or less than the non-recycled products. All of these items are available through local suppliers, so schedule should not be an issue. Home Depot carries fiberglass insulation from Johns Manville with 25 percent recycled glass (look for the SCS certification logo). Carpets with recycled polyester face fibers are available from most carpet suppliers. Recycled paint can be ordered through GSA at <https://www.gsaadvantage.gov>. Other recycled paints are 'E-coat,' a Kelly Moore brand that contains 50 percent to 80 percent recovered latex paint; 'Recover,' manufactured by Amazon Environmental, Inc. and sold at Dunn-Edwards Paint Com-

pany; and Visions Recycling, Inc. paints sold at Sherwin Williams stores that contains at least 50 percent recovered paint.

Back to the renovation example. If the contractor still cannot buy the 'right stuff' for your conference room project, then the project manager must submit a waiver for these items to Code QE, Mailstop 218-1. The waiver is required. Just add the following statement on the work request along with the bulleted items above 'Project manager must submit a request for waiver to Mailstop 218-1 for any of these products that do not meet the CPG recycled content levels.' This waiver form is available on the QE Web site at: [http://q/qe/forms/recycle\\_waiver\\_req.pdf](http://q/qe/forms/recycle_waiver_req.pdf). For more information, call Christel VanArsdale ext. 4-1175 or Mark Lacy at ext. 4-1406.

## Errata

On page 10 of the November edition of the Astrogram, in the article 'NASA Purchasing Goals for Ames Employees,' the first goal should have read '...100 percent recycled paper content by 2005,' not 10 percent.

## Jennings inducted into Hall of Fame

Ernie Jennings, branch chief for Code FEF, attended the Air Force Academy in Colorado Springs, Colo., from 1967 to 1971. He played football for the Falcons from 1968 to 1971, during which time he set many records that have not been broken to this day. His opponents developed an instant respect for this running back with soft hands, quick lateral moves and ability to run deep patterns. These attributes made Jennings nearly impossible to defend. Jennings was nominated for the Heisman Trophy and was named to the All-American football team. He was one of only five consensus All-Americans from the Air Force Academy. Jennings played in the 1970 Sugar Bowl and was an academic All-American in 1969 and 1970.

On Nov. 8, 2003, Jennings was inducted into the Colorado Springs Sports Hall of Fame. Jennings, his wife Barbara, daughter Shavone, grandson Christian and his mother and father (who



Ernie Jennings during his Air Force Academy days.

live in Florida) all attended the recognition ceremony.

## Ongoing Event Calendar

**Ames Amateur Radio Club**, third Thursday of each month, 12 noon, N-T28 (across from N-255). POC: Michael Wright, KG6BFK, at ext. 4-6262.

**Ames Ballroom Dance Club**. Classes on Tuesdays. Beginning classes meet at 6:15 p.m. Higher-level class meets at 5:15 p.m. Held in Bldg. 944, the Rec. Center. POC: Helen Hwang, hwang@dm1.arc.nasa.gov, 4-1368.

**Ames Bowling League**, Palo Alto Bowl on Tuesday nights. Seeking full-time bowlers and substitutes. Questions to sign up: Mike Liu at ext. 4-1132.

**Ames Child Care Center Board of Directors Mtg.**, every other Thursday (check Web site for meeting dates: <http://accn.arc.nasa.gov>), 12 noon to 1:30 p.m., N-210, Rm. 205. POC: Cheryl Quinn, ext 4-5793.

**Ames Contractor Council Mtg**, first Wednesday each month, 11 a.m., N-200, Comm. Rm. POC: Anita Fogtman, ext. 4-4432.

**Ames Diabetics (AAD)**, 1st & 3rd Weds, 12 noon to 1 p.m., at Ames Mega Bites, Sun room. Support group discusses news affecting diabetics. POC: Bob Mohlenhoff, ext. 4-2523/e-mail at: bmohlenhoff@mail.arc.nasa.gov.

**Ames Federal Employees Union (AFEU) Mtg**, third Wednesday of ea. month, 12 p.m. to 1 p.m., Bldg. 221, Rm 104. Guests welcome. Info at: <http://www.afeu.org>. POC: Marianne Mosher, ext. 4-4055.

**Ames Mac Support Group Mtg**, third Tuesday of ea. month, 11:30 a.m. to 1 p.m., Bldg. N262, Rm 180. POC: Julie ext. 4-4694 or Tony ext. 4-0340.

**Ames Model Aircraft Club**, flying radio-controlled aircraft at the north end of Parsons Ave. on weekend mornings. POC: Mark Sumich, ext. 4-6193.

**Ames Sailing Club Mtg**, second Thursday of ea. month (Feb through Nov), from 11:30 a.m. -1 p.m. in the special events room in the Ames Visitor Center in N-223. All are welcome. POC: Jeff Smith, ext. 4-2586.

**Environmental, Health and Safety Information Forum**, first Thursday of each month, 8:30 a.m. to 9:30 a.m., Bldg. 221/Rm 155. URL: <http://q.arc.nasa.gov/qe/events/EHSeries/> POC: Stacy St. Louis at ext. 4-6810.

**The Hispanic Advisory Committee for Excellence HACE Mtg**, first Thurs of month in N255 room 101C from 11:45 a.m. to 12:45 p.m. POC: Eric Kristich at ext. 4-5137 and Mark Leon at ext. 4-6498.

**Jetstream Toastmasters**, Mondays, 12 p.m. to 1 p.m., N-269/Rm.179. POC: Becky Brondos at ext. 4-1959, bbrondos@mail.arc.nasa.gov or Bob Hilton at ext. 4-1783, bhilton@mail.arc.nasa.gov.

**Nat'l Association of Retired Federal Employees, (NARFE)**. Former and current federal employees. Your only contact with Congress. Join to protect your federal retirement. Chptr #50 meets the first Fri. of each month at HomeTown Buffet, 2670 El Camino (at Kiely), S. Clara, 11 a.m. lunch. January meeting is on Jan. 9. POC Earl Keener (408) 241-4459 or NARFE 1-800-627-3394.

**Native American Advisory Committee Mtg**, fourth Tues each month, 12 noon to 1 p.m., Bldg. 19, Rm 1096. POC: Mike Liu at ext. 4-1132.

## Weiler tours Ames facilities



*Dr. Edward Weiler, Associate Administrator for the Office of Space Sciences, recently visited Ames and toured a number of the center's many facilities accompanied by Ames Center Director G. Scott Hubbard.*



*NASA photo by Roger Brimmer*

## NASA is best

*continued from front page*

committed of any in the federal government," said Max Stier, president of the Partnership for Public Service, a co-author of the report along with American University's Institute for the Study of Public Policy Implementation.

According to Administrator Sean O'Keefe, NASA's excellent showing in the survey is attributable to a number of factors. "We are responsible for some very exciting work. We value our employees as our greatest asset, and we have agency policies and practices that reflect this belief," he said in a message to the NASA workforce.

"Our program to recognize and reward employee achievements is outstanding," he commented. "We continually strive to make NASA the best possible place to work and we communicate that commitment directly to the workforce."

"You are all strongly committed to our mission goals and to helping us work through our current challenges," O'Keefe added. "I am convinced that our unceasing efforts to enhance mission safety and develop an organizational culture that empowers open dialog will help us become an even stronger agency in the weeks and months ahead," he concluded.

BY DAVID MORSE 



## Ames Classifieds

Ads for the next issue should be sent to [astrogram@mail.arc.nasa.gov](mailto:astrogram@mail.arc.nasa.gov) and must be resubmitted for each issue. Ads must involve personal needs or items; (no commercial/third-party ads) and will run on a space-available basis only. First-time ads are given priority. Ads must include home phone numbers; Ames extensions and email addresses will be accepted for carpool and lost and found ads only. Due to the volume of material received, we are unable to verify the accuracy of the statements made in the ads. Caveat emptor!

## Housing

For rent: Large 2 bd/1-1/2 ba apt. in 4-plex with wireless Internet access included. Sunnyvale, close to Ames. \$1,150/mo. N/S. Call (408) 739-3303. For details see: <http://www.peacham.homeip.net/rental.htm>

Room in 4 bd/2 ba home excellent, quiet Mtn. View area close to Ames. W/D, microwave, fireplace, wired for cable modem. Tidy person and nonsmoker. Easy access to Ames, H85, 237 and 101. \$445 and dep. and share utils. Avail. Jan. 1. Call (650) 964-1900.

## Transportation

'87 Suburban, body 84K mls, engine and trans 22K miles. Too many extras to list. Great condition, \$4,200 or B/O. Joe (408) 264-4627.

'98 Honda Civic DX 4D, 67k mls. Automatic. Power steering, silver. Very well maintained. All service records kept. AM/FM stereo. Dual front air bags. \$8,400. Ludovic (650) 962-8230 or e-mail: [ludovicbiennier@yahoo.com](mailto:ludovicbiennier@yahoo.com)

## Miscellaneous

Atwater Kent Model 84 1931 antique radio. Good condition. \$100. Call (408) 248-1985.

Carters rocking bassinet w/retractable wheels, white w/ blue pattern. Has overhead canopy and ample storage underneath. Great condition. \$25. Call (408) 295-2160.

Rossignol 4M downhill skis, 190cm, Marker bindings, poles, ski bag, Salomon SX-50 boots and bag, men's size 10. Hardly used. \$100 for all. Call (408) 945-3917 or e-mail [nengim@yahoo.com](mailto:nengim@yahoo.com)

White sofa, purchased in from Scandinavian Design for \$1,500 about 5 years ago. 96" long, lots of down pillows, soft and inviting. \$450 or B/O. Great condition. Ralph (408) 730-4630 or (408) 483-7051.

Graco 2-speed electric baby swing. White enamel finish with blue trim. Great condition. \$20. Call (408) 295-2160.

Sears recumbent bike/elliptical cross trainer \$100. Beautiful 6 foot oak bookcase \$100. Flat weight lifting bench \$75. Call (650) 965-1782.

NordiTrak Pro cardiovascular ski exerciser with electronic speedometer, chronometer and pulse rate monitor. Excellent condition. Lists new for \$600 to \$800. Offered at \$150. Call (408) 446-4178.

Fridge \$60; washer and dryer, \$75. Baby stuff: High chair, \$10; carrier/car seat, \$10; car seat, \$20; changing table, \$10; crib, \$20; jogger, \$35, playpen, \$10. Mike (415) 828-0514.

Credenza, 20in x 30in x 46in, beautiful honey-laquer finish, excellent condition, \$300. Call (650) 473-0604.

Looking for girl's bedroom set, pref. white: bed, dresser and mirror. Also, looking for piano stool, lawn mower, tiller and freezer. E-mail: [falcon7777\\_2000@yahoo.com](mailto:falcon7777_2000@yahoo.com)

## NARFE defined

You probably know that the National Association of Retired Federal Employees (NARFE) is not a union but a retired federal employee organization that has its headquarters in Washington, D.C.

The NARFE personnel in Washington communicate directly with Congress regarding issues that affect federal employees.

A big issue now is to allow 'premium conversion' for retirees, in which health plan payments are exempt from federal taxes. Federal employees now have this, but not retirees. That means that when a federal employee retires, then the health plan payments are taxed--an oversight when congress approved the exemption for congressional staff and then federal employees.

All federal employees, including management are eligible for membership in NARFE. Our dues support our efforts in Washington.

For more information, contact the NARFE President, Earl Keener, Chapter 50, San José, at: [Earlkeener@aol.com](mailto:Earlkeener@aol.com)

## Exchange Information

Information about products, services and opportunities provided to the employee and contractor community by the Ames Exchange Council. Visit the web site at: <http://exchange.arc.nasa.gov>

**Beyond Galileo** N-235 (8 a.m. to 2 p.m.) ext. 4-6873

Ask about NASA customized gifts for special occasions. Make your reservations for Chase Park

**Mega Bites** N-235 (6 a.m. to 2 p.m.) ext. 4-5969

See daily menu at: <http://exchange.arc.nasa.gov>

**Visitor Center Gift Shop** N-223 (10 a.m. to 4:00 p.m.) ext. 4-5412

NASA logo merchandise, souvenirs, toys, gifts and educational items.

**Tickets, etc...** (N-235, 8 a.m. to 2 p.m.) ext. 4-6873

Check web site for discounts to local attractions, <http://exchange.arc.nasa.gov> and click on tickets.

**NASA Lodge** (N-19) 603-7100

Open 7 days a week, 7:00 a.m. to 10 p.m. Rates from \$40 - \$50.

## Vacation Opportunities

Lake Tahoe-Squaw Valley Townhse, 3bd/2ba. View of slopes, close to lifts. Per night: \$250, two night minimum. Includes linens, cleaning, propane fireplace, fully equipped. Call (650) 968-4155. [dbmckellar@aol.com](mailto:dbmckellar@aol.com)

South Lake Tahoe cottage w/wood fireplace, hot tub. Rates \$50 to \$130 per night. Call (650) 967-7659 or (650) 704-7732.

Vacation rental, Bass Lake, 4 mls south of Yosemite. 3bd/1.5 ba, TV, VCR, MW, frplc, BBQ, priv. boat dock. Sleeps 8. \$1,050/wk. Call (559) 642-3600 or (650) 390-9668.

Big Sur vacation rental, secluded 4bd/2ba house in canyon setting. Fully eqpd kitchen. Access to priv. beach. Tub in patio gdn. Halfway between Carmel and Big Sur. \$175/night for 2; \$225 for 4 and \$250 for more, plus \$150 cleaning dep. Call (650) 328-4427.

Incline Village: Forest pines, Lake Tahoe condo, 3 bd/2 ba, sleeps 8. Fireplc, TV/VCR, MW, W/D, jacuzzi, sauna, pool. \$120/night low season; \$155/night high season. \$90 cleaning fee and 12% Nevada room tax. Charlie (650) 366-1873.

Tahoe Donner vacation home, 2 bd/2ba. trees, deck, sun, fun. Access to pools, spa, golf, horseback riding. \$280 wkend, \$650 week. Call (408) 739-9134.

Pine Mountain Lake vacation home. Access to golf, tennis, lake, swimming, horseback riding, walk to beach. Three bedrooms/sleeps 10. \$100/night. Call (408) 799-4052 or (831) 623-4054.

Spacious 2 bdrm Maui suite available (can accommodate up to 6 people) for 1 week. Cooking facilities, color TV, swimming pools, access to beach and much more. Located nearby shopping centers, golf courses, and all water activities. \$1,200 a week or B/O. Call (408) 446-4416 for more information.

## Ames emergency announcements

To hear the centerwide status recording, call (650) 604-9999 for information announcements and emergency instructions for Ames employees. You can also listen to 1700 KHz AM radio for the same information.

## Safety Data

	Civil Servants	Contractors
Not recordable first aid cases	1	3
Recordable no lost time cases	1	1
Lost time cases*	0	1
Restricted duty days	0	0
Lost work days	0	5

Data above is for November 2003.

\*(Under new OSHA rules, lost time is defined as lost work days, restricted duty or work transfer.)

## Astrogram deadlines

Deadline: Dec. 22      Publication: Jan. 2004

All Ames employees are invited to submit articles relating to Ames projects and activities for publication in the *Astrogram*. When submitting stories or ads for publication, submit your material, along with any questions, in MS word by e-mail to: [astrogram@mail.arc.nasa.gov](mailto:astrogram@mail.arc.nasa.gov) on or before the deadline.

## Self assessments summed up

As part of the Voluntary Protection Program (VPP), a self-assessment of safety and health performance is conducted annually for each of the center's eight directorates. This assessment includes facility inspections, program reviews, review of management systems, and review of employee participation in safety and health. This process was developed and approved by the executive safety committee as a means to make Ames a safer place to work.

The 2003 self-assessment process began last March with Code Q and recently concluded with the completion of Code F's assessment at the end of October.

One component of the annual self-assessment is facility inspections and program reviews. The team conducting these inspections and reviews is comprised of an industrial hygienist and safety customer service representative from Code QH. In addition to assessing compliance with regulations and requirements, the teams also focused their attention on finding examples of implemented best practices. These examples can be found in the 'Best Practices for 2003' document located on the Ames VPP Web site at: <http://q.arc.nasa.gov>. Choose 'Voluntary Protection Program' and on the VPP page choose 'Best Practices for 2003.' Employees may browse

through the document and gather ideas for possible implementation in their own organizations, thereby improving safety center-wide.

Another component of the self-assessment is measuring employee involvement in safety. This is assessed through employee participation on safety committees, employees participating in the supervisor monthly inspections, nominations and awards under the ASAP II and participation in the performance evaluation profile (PEP) survey.

For 2003, the number of employees participating on safety committees increased by 17 percent as compared to CY02. In 2002, 56 percent of monthly supervisor inspections included employees. In 2003, 93 percent of monthly supervisor inspections had employees accompany them. The number of center-wide safety committees increased from nine to 12, one of which is the employee based safety suggestion committee.

If you would like to be involved on a center-wide safety committee or learn more about the great things the safety committees are working on, visit: <http://q.arc.nasa.gov> and choose 'Safety Committees.' Each committee has a chairperson you can contact to get more information about how you can be in-

involved on the committee.

With all of the self-assessments completed, the next step is to address center-wide concerns and the directorate recommended improvements. Directorates are working to implement the recommended improvements identified during their assessment. The center-wide concerns are also being implemented and where appropriate, incorporated into the next year's continuous improvement goals.

## Syvertson receives honorary degree

C.A. 'Sy' Syvertson, former Ames center director, recently received the honorary degree of 'Doctor of Science' from the Board of Regents of the University of Minnesota. This was upon recommendation of the Institute of Technology and the All-University Honors committee.

The honorary degree is the highest award conferred by the University of Minnesota. It recognizes individuals who have achieved acknowledged eminence in cultural affairs, in public service, or in a field of knowledge and scholarship.



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